UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,368	04/15/2004	Toru Noguchi	119482	6615

25944 7590 11/20/2006

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
WILLIAMS, THOMAS J	

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,368	NOGUCHI ET AL.	
	Examiner	Art Unit	
	Thomas J. Williams	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-13,15 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-11,15 and 16* is/are rejected.

7)☒ Claim(s) *5,6,12 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgment is made in the receipt of the amendment filed September 20, 2006.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,076,593 to Sullivan et al. in view of GB 1,050,021 to Melvin.

Re-claims 1, 15 and 16, Sullivan et al. teach a piston seal used in a caliper body of a disc brake, wherein the piston seal 124 fluid tightly and slidably maintains a piston 14 in a cylinder bore, the piston slides in the bore, the piston is rolled back by the seal, see abstract, the seal is formed from a rubber composition; the cylinder 12 has a cylinder bore 12b'including a ring shaped groove formed on an inner surface of the bore, the seal is fitted into the ring shaped groove 13, wherein the piston when inserted in the bore, is fluid-tightly and movably in contact

with the cylinder, and the piston that has been moved forward by applying hydraulic pressure is rolled back by the piston seal.

However, Sullivan et al. fail to teach the exact composition of the seal, in particular the piston seal formed of an ethylene propylene rubber composition comprising at least 100 parts carbon black per hundred parts rubber.

Melvin teaches a synthetic rubber composition used in sealing elements that is formed of an ethylene propylene terpolymer (synthetic rubber) comprising at least 100 parts carbon black (identified as reinforcing filler in Melvin) per hundred parts rubber, see page 2 lines 8-14 (see the already extended terpolymer example, note that the composition may comprise only the rubber and the carbon black); or 120 to 250 parts carbon black to 100 parts rubber, see page 2 lines 1-7; in addition oil extended terpolymer example contains no hydrocarbon oil and is broadly interpreted as having no process oil. Melvin teaches these compositions has having both good sealing properties and resistance to weathering, and subsequently a good resistance to wear, see page 1 lines 40-47. It would have been obvious to one of ordinary skill in the art to have provided the brake assembly of Sullivan et al. with a seal having the composition comprising 100 (or 120-250) parts carbon black per 100 parts rubber (ethylene propylene) as taught by Melvin, thus providing the brake assembly with a seal having good sealing properties as well as resistance to wear, thus effectively increasing the life expectancy of the brake assembly.

5. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al. in view of Melvin as applied to claim 1 above, and further in view of US 6,274,665 to Ono et al.

Re-claim 2, Sullivan et al. as modified by Melvin fail to specify the diameter size of the carbon black used in the seal element. Ono et al. teach a seal element, wherein the sealing properties are enhanced while maintaining the rubber like properties for the seal by using carbon black having a particle diameter less than 100 nm. It would have been obvious to one of ordinary skill in the art when having modified the seal of Sullivan et al. as taught by Melvin, to have used carbon black with a particle diameter of between 40 nm and 500 nm as taught by Ono et al., thereby enhancing the rubber like sealing properties of the seal.

Re-claim 9, Sullivan et al. teach the recited structure.

6. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al. in view of Melvin as applied to claim 1 above, and further in view of US 6,642,291 to Chino et al.

Re-claim 3, Sullivan et al. as modified by Melvin fail to specify the carbon black having a nitrogen adsorption specific surface area of 70 m^2/g or less. Chino et al. teach a viscoelastic improving agent for rubber using carbon black having a nitrogen adsorption specific surface area of 70 m^2/g or less, see column 7 lines 15-17. It would have been obvious to one of ordinary skill in the art when having modified the seal of Sullivan et al. as taught by Melvin, to have used carbon black with a nitrogen adsorption specific surface area of 70 m^2/g or less as taught by Chino et al., thus enhancing the viscoelastic properties of the seal.

Re-claim 10, Sullivan et al. teach the recited structure.

7. Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan et al. as modified by Melvin as applied to claim 1 above, and further in view of US 5,252,659 to Koizumi et al.

Re-claim 4, Sullivan et al. as modified by Melvin fail to specify the rubber composition having a coefficient of linear expansion of 1.6×10^{-4} (/K) or less. Koizumi et al. teach a ethylene propylene rubber composition having a coefficient of linear expansion of less than 1.6×10^{-4} (/K), as such the composition will have a high level of dimensional stability and high level of weatherability, see column 4 lines 31-46. It would have been obvious to one of ordinary skill in the art when having modified the seal of Sullivan et al. as taught by Melvin, to have designed the rubber composition with a coefficient of linear expansion of less than 1.6×10^{-4} (/K) as taught by Koizumi et al., thus increasing the life expectancy of the seal.

Re-claim 11, Sullivan et al. teach the recited structure.

Allowable Subject Matter

8. Claims 5, 6, 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 1-13, 15 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is 571-272-7128. The examiner can normally be reached on Tuesday from 1:00 PM to 7:00 PM and Wednesday-Friday from 6:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan, can be reached at 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-6584.

TJW

November 15, 2006

THOMAS J. WILLIAMS
PRIMARY EXAMINER

Thomas Williams
AU 3683
11-15-06